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[0021] What is claimed is:

1. A method for reserving a non-volatile cache for explicit control by an application comprising:
reserving a first portion of the cache for application memory requests based at least in part on a predetermined set of functions that are supported by a driver for application calls; and
reserving a second portion of the cache for application memory requests.
2. The method of claim 1 wherein the predetermined set of functions comprises: Allocate, Get, Set, and Free.
3. The method of claim 1 wherein the predetermined set of functions allow for direct or indirect application calls.
4. A method for reserving a non-volatile cache for explicit control by an application comprising:
reserving a first portion of the cache for application memory requests based at least in part on a predetermined set of functions that are supported by a driver for application calls; and
reserving a second portion of the cache to be used as a disk cache.
5. The method of claim 4 wherein the predetermined set of functions comprises: Allocate, Get,

314 Set, and Free.

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316 6. The method of claim 1 wherein the predetermined set of functions allow for direct or indirect
317 application calls.

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319 7. An apparatus comprising:

320 a non-volatile cache, coupled to a main memory and a mass storage; and

321 the non-volatile cache to support a predetermined set of functions that are supported by a
322 driver for application calls and a bit is set and cleared per affected cache-line in the cache-line
323 metadata in the cache and the data allocation is done on a cache-line granularity.

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325 8. The apparatus of claim 7 wherein the predetermined set of functions comprise: Allocate, Get,
326 Set, and Free.

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328 9. The apparatus of claim 7 wherein the predetermined functions allow for direct or indirect
329 application calls.

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331 10. The apparatus of claim 7 wherein the apparatus is to be implemented in either: a memory
332 controller, a chipset, or an application specific integrated circuit (ASIC).

333 11. The apparatus of claim 8 wherein the non-volatile cache, in response to an Allocate function,
334 will:

335 determine whether a predetermined number of bytes can be reserved,

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337 if so, to identify cache-lines to use to reserve the predetermined number of bytes,

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flush the cache-lines if they are dirty and mark them as empty,
pin these cache-lines, and
return a pointer to a structure that identifies the cache-lines reserved for this request.

12. The apparatus of claim 8 wherein the non-volatile cache, in response to a Set function, will:
determine that input paramaters are valid (not null) and a data region referenced is in range,
identify the cache-lines to use,
copy data from a data Buffer to the applicable cache lines and mark these lines valid (not empty).

13. The apparatus of claim 8 wherein the apparatus is supervised by a driver in a software algorithm.

14. The apparatus of claim 8 wherein the non-volatile cache, in response to a Get function, will:
determine that input parameters are valid (not null) and a date region referenced is in range,
identify the cache-lines to use and determine if they are valid (not empty), and
copy data from the applicable cache lines into a data Buffer.

15. The apparatus of claim 8 wherein the non-volatile cache, in response to a Free function, will:
determine that input parameters are valid (not null),
unpin the cache-lines,
and Mark the cache lines as invalid

16. An apparatus comprising:
a non-volatile cache, coupled to a main memory and a mass storage; and
the non-volatile cache to support a predetermined set of functions that are supported by a
driver for application calls and the cache is specifically utilized for an application and the non-
volatile cache does not require pin bits.

375 17. The apparatus of claim 16 wherein the predetermined set of functions comprise: Allocate,
376 Get, Set, and Free.

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378 18. The apparatus of claim 16 wherein the predetermined functions allow for direct or indirect
379 application calls.

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381 19. The apparatus of claim 16 wherein the apparatus is to be implemented in either: a memory
382 controller, a chipset, or an application specific integrated circuit (ASIC).

383 20. The apparatus of claim 17 wherein the cache, in response to the predetermined set of the
384 functions, will:
385 reserve a section of the cache for the application; and
386 invoke a cache manager on a pre-reserved portion of the cache to support the predetermined set
387 of functions.

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389 21. An article of manufacture comprising:
390 a machine-readable medium having a plurality of machine readable instructions, wherein
391 when the instructions are executed by a system, the instructions provide to manage a cache
392 memory for:
393 allocating a first portion of the cache memory for application memory requests based at
394 least in part on a predetermined set of functions that are supported by a driver for application
395 calls; and
396 initializing at least one byte of the first portion of the cache memory in response to the
397 predetermined set of functions;
398 reading at least one byte of the first portion of the cache memory in response to the
399 predetermined set of functions; and

400 deallocating at least one byte of the first portion of the cache memory in response to the
401 predetermined set of functions.

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22. The article of manufacture of claim 21 wherein the predetermined set of functions
comprises: Allocate, Get, Set, and Free.

23. The article of manufacture of claim 21 wherein predetermined functions allow for
direct or indirect application calls.